U.S. DEPARTMENT OF COMMERCE
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PB-260 015

ANNUAL REPORT FISCAL YEAR 1965

ACCOMPLISHMENTS DURING FY 1965

WORK PLANS FOR FY 1966

PUBLIC HEALTH SERVICE
CHICAGO, ILLINOIS

JUNE 1965

PB 260 015

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. PB-260 015
4. Title and Subtitle: Annual Report Fiscal Year 1965. Accomplishments During FY 1965. Work Plans for FY 1966			5. Report Date: Jun 65 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: Public Health Service, Chicago, Ill. Div. of Water Supply and Pollution Control			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered 14.

15. Supplementary Notes

16. Abstracts: Progress in controlling water pollution in Region V of HEW's Division of Water Supply and Pollution Control is reported for fiscal year 1965. Region V is a five state area bordered by the Great Lakes and the Mississippi and Ohio Rivers and their tributary streams. Accomplishments are reported for: the construction of sewage treatment facilities; the development and implementation of comprehensive programs for pollution abatement in cooperation with the several states; abatement actions under the enforcement authority of the Federal Water Pollution Control Act; and technical assistance to Federal, state and local agencies in pollution abatement problems. Work plans for the coming year are also summarized in this report.

17. Key Words and Document Analysis. 17a. Descriptors

17b. Identifiers/Open-Ended Terms

*Water pollution control
*Sewage treatment
Water pollution abatement
Federal Water Pollution Control Act
Wisconsin
Michigan
Illinois
Indiana
Ohio
Lake Superior
Lake Huron
Lake Erie
Lake Michigan
Mississippi River
Ohio River

17c. COSATI Field/Group 13B

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 61 p
	20. Security Class (This Page) UNCLASSIFIED	22. Price

FORM NTIS-35 (REV. 10-73) ENDORSED BY ANSI AND UNESCO. THIS FORM MAY BE REPRODUCED USCOMM-DC 8265-P74

ANNUAL REPORT
FISCAL YEAR 1965

ACCOMPLISHMENTS DURING FY 1965
WORK PLANS FOR FY 1966

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Division of Water Supply and Pollution Control

Region V
Chicago, Illinois

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CLEAN WATER

During the past year, it has become increasingly evident to an ever greater number of citizens that the continued health and welfare of our country depends, to a large extent, on an adequate supply of CLEAN WATER for all legitimate uses. The emphasis placed on water resources planning at all levels of government, points up the fact that water is our No. 1 natural resource problem.

Region V is fortunate in having an abundant natural supply of water. The Great Lakes, which form the world's largest concentration of fresh water, border all five States of the Region on the north. The Mississippi River on the west and the Ohio River on the south, together with their many tributary streams, provide dependable water supplies in a large part of Wisconsin, Illinois, Indiana and Ohio. In addition, ground water supplies are generally adequate, although the quantity is limited in some areas, due to geological structures or overpumping.

However, Region V also has an abundant supply of the primary sources of water pollution - people, industry and intensive land use. The five-state Region contains 20 percent of the population of the United States, with over 2,000 communities having municipal waste facilities serving 26.5 million people. These urban concentrations produce sewage pollution which is discharged to surface waters, usually after some degree of treatment. One of the more vexing pollution problems, especially in the lakes of the Region, is the presence of nutrients in concentrations which promote the excessive growth of algae. Sewage treatment processes in general use today are not efficient in removing nitrates and phosphates, and municipal sewage is a major source of this pollution.

Region V is also a highly developed industrial area. The largest concentrations of industry are in the Chicago and Detroit areas, but many parts of the Region have individual industrial waste problems, from pulp and paper mills in the north to acid mine drainage and oil well brines in the south. Practically all of the industrial waste not connected to municipal systems is discharged to surface waters, either with or without treatment. In addition to the organic and inorganic wastes which have long been common to industrial processes, many new, exotic wastes requiring special treatment are being produced by the synthetic chemical industry. Another new pollutant requiring special attention is radioactive waste, as this type of waste is not detected by the usual water pollution analyses. Heat pollution is assuming greater importance, as increasing amounts of cooling water are required by expanding industrial development.

A large part of the Region is subject to intensive agricultural use. Grain farming occupies the most acreage, but fruit and vegetable farming is also common in the area. This, combined with the extensive construction programs in housing, industry and highways, contributes heavy silt loads to most of the streams in the Region. Improper use of fertilizers, insecticides, and herbicides may contribute nutrients and toxic substances to our streams. The rapid growth of urban areas adds many acres of streets, high-

ways, parking lots, airports, housing and other buildings each year. The runoff from these hard-surfaced areas include all accumulated deposits of oils, organic matter, trash, soil, industrial dusts, and fertilizers and pesticides used on lawns and parks.

Thus it is evident that water pollution control is a very real problem in Region V, if we are to have an adequate supply of CLEAN WATER.

On the pages that follow is a summary of our progress during the past year towards the goal of CLEAN WATER for Region V. Notable accomplishments have been made in: the construction of sewage treatment facilities; the development and implementation of comprehensive programs for pollution abatement in cooperation with the several states; abatement actions under the enforcement authority of the Federal Water Pollution Control Act; and technical assistance to Federal, State and local agencies in pollution abatement problems.

A significant step in the Water Supply and Pollution Control Program for Region V and nearby States is the establishment of the PHS Midwest Water Laboratory at Ann Arbor, Michigan. This laboratory will be a center for research, investigation, and technical assistance on water pollution problems of the midwest area. The laboratory is expected to be in operation in FY 67.

Work plans for the coming year are also summarized in this report. These plans reflect the increasing emphasis being placed on the Water Supply and Pollution Control Program, and our desire to play a vital role in this dynamic program for CLEAN WATER during Fiscal Year 1966.

CONSTRUCTION GRANTS SECTION

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

More Projects Completed Than Ever Before

Over 175 Federally-assisted sewage treatment works projects were completed and placed in operation during Fiscal Year 1965. The completion of many projects aided under the Accelerated Public Works program contributed to this record-breaking number of finished projects.

More Miles of Stream Improved

The FY 1965 project completions resulted in water quality improvement for all legitimate uses in an additional 600 miles of streams. A cumulative total of 7,000 miles of streams has now been improved during the nine-year life of the grants program.

110 New Project Starts

For the first time in three years, all 110 new grant offers were made under the regular grants program without the help of APW funds. While constituting a sizeable number of new starts, the total number reverted to the approximate pre-APW level. New grant offers totaled $14 million and supported eligible project costs of $45 million.

Performance Audit Responsibilities Turned Over to States

The basic responsibility for assessing the performance and operation of completed grant-sponsored projects in Indiana and Michigan was turned over to the States because of the consistently high quality of plant supervision carried on by these States. Throughout Region V, 130 plant performance audits were conducted this year by staff engineers. Projects involving needed corrective action were reported to the States and municipalities for follow-up.

Civil Rights Emphasized

Issuance of the Departmental Civil Rights Regulation gave added impetus and awareness to the Federal effort to end discrimination. All States, and some 350 municipalities, were notified of the new regulation. Every municipality returned a signed Assurance of Compliance. Special efforts were made to instruct the staff on Federal responsibilities under the new regulation. Top staff participated in an orientation session featuring Assistant Secretary Quigley.

375 Payment Inspections: A Record Number

Again, the impact of APW projects contributed heavily to the record

number of 375 project payment inspections made at the actual project sites. Public information materials on pollution abatement were distributed at many inspections.

Stormwater Retention Project Approved

A unique project approved in FY 1965 was the 8½ Mile Drain project in Michigan, which provides for a huge retention basin to abate the discharge of combined sewage and stormwater into Lake St. Clair. Retained material will be discharged to a treatment plant.

Staff Reduction

In spite of some record-breaking work activities, the added seasoning and experience of the staff made possible a staff reduction of two engineers. This constituted part of the Construction Grants program's contribution to the overall Departmental stress on increased management efficiency and economy.

Construction and the Municipal Water Pollution Problem

Wastes discharged from municipal sewers are one of the major causes of water pollution. The accelerated growth of population and industry, along with the continuous trend to group together in urban centers, has resulted in a tremendous increase in the volume of municipal wastes.

For the most part, the municipal water pollution problem is simply that communities are not building adequate sewage treatment facilities fast enough to keep abreast of the increases in waste loads arising from the needs of new people, new housing, and expanding industry. As a result, the great amounts of untreated and inadequately treated sewage and wastes being discharged are creating serious pollution problems that endanger the Nation's health and welfare.

Federal Financial Aid to Help in Meeting the Problem

Every town and city is responsible for cleaning up the pollution it creates. To help communities get this job done, one of the most important provisions of the Federal Water Pollution Control Act is the construction grants provision. This provision is designed to assist municipalities in meeting the cost of building adequate local sewage treatment facilities. Since the beginning of the grants program in 1956, approximately $100 million in construction grants have been allotted to the States in Region V. Over 900 local projects, costing about $375 million, have been supported by these grant funds.

Big Construction Backlog in Region V

Although a great deal of sewage treatment plant construction has been accomplished in the past few years, much more remains to be done in this Region. The Regional backlog of short-range construction needs consists of over 300 projects estimated to cost $130 million. Unsatisfied Federal grants of $28 million have been requested to aid in eliminating this project backlog. The pending grant requests represent 100 percent more than the amount of grant funds that will be available in Fiscal Year 1966, if the Congress appropriates at the same level as Fiscal Year 1965. Significantly, the amount of unsatisfied grant requests is 40 percent higher than last year at this time.

Appalachian Construction Backlog

Twenty-eight economically depressed counties in southeastern Ohio are included in the newly-enacted Appalachian Regional Development Act of 1965. The construction backlog of sewage treatment facilities in these counties, including treatment plants and sewer systems, totals at least 61 projects

costing an estimated $9.5 million. Under the Appalachia legislation, if approved for a construction grant, an individual project could receive a grant amounting to as much as 80 percent of eligible project costs. This reflects the economically depressed character of the area inasmuch as regular construction grants are limited to 30 percent. The Program will be ready to gear itself, consistent with available funds, to the immediate demands of the Ohio segment of Appalachia.

Phasing Out of Accelerated Public Works Program

The APW program has been emminently successful in building sewage treatment facilities in a number of economically depressed communities that might otherwise have delayed needed construction for many years. Because no new APW grants were made in Fiscal Year 1965, it is anticipated that all APW projects will be completed and placed in operation during Fiscal Year 1966. Out of 125 previously approved APW projects, 91 projects have already been completed. Special effort will be made to accelerate completion of the remaining projects. In most cases, those projects not yet finished are over 80 percent complete.

Over 100 New Grant Offers Expected in Fiscal Year 1966

If the same level of appropriations is available for Fiscal Year 1966, over 100 new grant offers can be expected. This is about the same number of new starts that took place in Fiscal Year 1965. The trend toward larger project grants will probably hold stationary unless the $250,000.00 grant limitation is removed in Michigan and Indiana as it has been removed in the other States. The average grant offer in the past year was $140,000.00 and this average should hold firm.

Project Payment Inspections Will Continue at High Level

Field payment inspections will taper off somewhat from the record high level of Fiscal Year 1965, but inspections should total in excess of 300 in Fiscal Year 1966. During the course of the actual inspections, continued emphasis will be placed on the program's opportunity to present water pollution information to lay and professional people.

Plant Performance Audits to Lessen

Fiscal Year 1966 will be the lightest year for plant performance audits since this program began in the summer of 1963. The load will lessen materially because the primary responsibility for doing most of the audits was assumed by two of the five States in Fiscal Year 1965. Total performance audits should approach 80, which is about one-third below the Fiscal Year 1965 total. Efforts will be made to accelerate the time when the performance audits can be turned over to the other three States in the Region.

Staff Development

The most important ingredient of any program -- bar none -- is the

people that work in the program. The finest program in the world is no better than the people that serve and administer it. To this end, every attempt will be made to develop the skills and potential of grant personnel to reflect the highest credit upon the program.

ENFORCEMENT SECTION

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Lake Michigan Conference

The enforcment Conference on Interstate Pollution of the Waters of the Calumet Area, Indiana and Illinois, March 2-9, 1965, signaled the beginning of major action to clean-up the heavy pollution at the south end of Lake Michigan. One of the Nation's largest complexes of steel, petroleum and chemical industries is located in the Calumet Area, and pollution of the waterways has been a long-standing problem to water supply and recreational facilities of the area. The Conference, which lasted four and one-half days, received a great deal of publicity and attracted widespread public attention. The Conferees' unanimous recommendations included a schedule for abatement of pollution from municipal wastes, and an agreement to produce a schedule for abatement of industrial pollution within six months. A technical committee was appointed, and is at work on the industrial waste problems. GLIRB Project will maintain surveillance sampling in the area to monitor the abatement program.

Mahoning River Conference

The enforcement Conference on Interstate Pollution of the Mahoning River, Ohio and Pennsylvania, was held February 16-17, 1965. The Conference received wide publicity, and aroused a great deal of interest in the affected area. A large amount of information and data was presented for consideration by the Conferees. At this time the Secretary of Health, Education, and Welfare has not issued the Conference Summary.

Detroit Area Conference

The second session of the enforcement Conference on Pollution of the Detroit River and Michigan Waters of Lake Erie was held June 15-18, 1965. The report and recommendations of the Detroit River-Lake Erie Project were generally well received. The Conferees reached unanimous agreement on measures needed to abate pollution in the Conference area, and requested the Michigan Water Resources Commission to prepare a schedule for the control of pollution in the Conference area. The Detroit River-Lake Erie Project will maintain surveillance sampling in the area to monitor the abatement program.

St. Louis Conference

The eighth progress meeting of the St. Louis area Conference was held on September 4, 1964. As a result of the progress meeting, an investigation of oil pollution above St. Louis was carried out in cooperation with Region VI and the Corps of Engineers.

Menominee River Conference

As agreed at the Conference on Pollution of Interstate Waters of the Menominee River, a cooperative biological study was completed in October, 1964. Participants were the DHEW and the State of Michigan and Wisconsin. The bottom gravel of the Menominee River had been cemented by iron which originated from iron mine drainage discharged to the Iron River in Michigan. Operation of the iron mines was discontinued in 1963, and improvement in the Menominee River was noted during the survey.

Clinton Area Conference

The City of Clinton, Iowa completed and placed in operation the primary sewage treatment plant and the lower portion of the interceptor sewer along the Mississippi River. Plans for the upper portion of the interceptor sewer and sewage treatment plant additions have been completed.

Twin Cities-Upper Mississippi River Conference

The collection of field data by the TCUMRP continued throughout the year. At the same time preparation of the report to be presented to the conferees was started and two volumes of the final report were submitted for review. All field work is scheduled to be completed during the summer of 1965 but record floods on the Minnesota and Mississippi Rivers during the spring of 1965 caused a rescheduling of the work load. However, it is still planned that the field work will be completed during 1965 and the final report submitted to the conferees when they reconvene in the spring of 1966.

Federal Installations Inspected

A new activity during the year was the investigation of waste disposal practices at Federal installations in Region V. Evaluation reports were furnished to the agencies involved, with recommendations for corrective actions. Engineering proposals for new or additional waste treatment facilities for the installations were reviewed, as were final plans and specifications. Installations which have taken remedial action to correct inadequacies were revisited.

Status reports on waste disposal practices at 50 Federal installations in Region V were prepared twice within the year for the Jones Committee (Subcommittee on Natural Resources and Power, House Committee on Government Operations).

WORK PLANS - FISCAL YEAR 1966

Lake Erie Conference

An enforcement Conference on Pollution of Interstate and Ohio Intrastate Waters of Lake Erie and Tributaries, Indiana, Michigan, Ohio, Pennsylvania, and New York has been called by the Secretary of Health, Education, and Welfare. The Conference will convene at Cleveland, Ohio, August 3, 1965, and will reconvene at Buffalo, New York, August 10, 1965. It is expected that pollution abatement programs arising out of this Conference will be tremendous in scope, in order to meet the problems, and will have great influence on pollution abatement efforts in the basins of the other Great Lakes.

Calumet Area

The Technical Committee established by the Calumet Area Conference will evaluate water quality criteria for the conference area, and will assist the States in developing a time schedule for the construction of needed industrial waste treatment facilities. The Enforcement Section staff will assist in the deliberations of the Technical Committee. The Committee report will be presented at the second session of the Conference, probably in October 1965.

The Enforcement Section will assist in the surveillance activities in the conference area. The surveillance program will be a cooperative effort with the State water pollution control agencies and the Metropolitan Sanitary District, with the purpose of assessing progress achieved in pollution abatement as a result of the recommendations of the Conferees.

Mahoning River Area

It is expected that surveillance sampling in the Conference area will be established. The Enforcement Section will plan and supervise the program.

St. Louis Area

The ninth progress meeting on the St. Louis enforcement conference area will be held during FY 1966. The Enforcement Sections of Region V and VI will present a report on the occurrence of oil pollution which interferes with the treatment of the municipal water supply at St. Louis.

Summary Reports

Factual water quality reports are prepared periodically on all significant interstate and navigable streams in the Region. It is planned to submit twelve such reports to Headquarters during FY 1966. Included in the preparation of these reports is the factual presentation of water

quality conditions. Where these data are not available, the need for such information is established. Damages to water uses, both existing and potential, are outlined.

Federal Installations

It is planned to complete the evaluation of waste treatment facilities at all Federal installations. All installations where inadequate practices have been noted previously will be revisited. As a result of instructions in the Bureau of the Budget Circular A-11, an increasing activity in the review of plans and specifications for additional or new waste treatment facilities at Federal installations is anticipated.

LAKE SUPERIOR
MICHIGAN
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
N
MENOMINEE
1963
WISCONSIN
TWIN CITIES
1964
MISSISSIPPI
MADISON
LANSING
DETROIT
1962
CLINTON
1962
CALUMET
1965
MAHONING
1965
OHIO
COLUMBUS
ILLINOIS
SPRINGFIELD
INDIANA
INDIANAPOLIS
RIVER
RIVER
ST. LOUIS
1958
OHIO
LEGEND
CONFERENCE AREAS
25 0 50 100
ANNUAL REPORT-FY 1965
ENFORCEMENT ACTIVITIES
U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE
REGION V
CHICAGO, ILLINOIS

FIGURE 1

ENGINEERING SECTION

ACCOMPLISHMENTS-- FISCAL YEAR 1965

Reorganization

The Engineering Section was established during the 2nd quarter of FY 65, to bring together engineering functions not administered by Construction Grants and Enforcement Sections. The various activities of the Section during the year are described below.

Cooperative Studies

Reports on the needs and value of water storage for municipal and industrial supply and for quality control purposes were completed for Corps of Engineers reservoir projects in Hocking River Basin, Ohio, and Kickapoo River Basin, Wisconsin (See Figure 2).

A detailed study of water supply and quality control needs in Big Muddy River Basin, Illinois, was started in FY 65, as part of a Type 2 coordinated basin study sponsored by the Corps of Engineers. Collection of basic data was the principal activity during the year. Staff members participated in planning meetings of the Coordinating Committee and Advisory Committees.

Geist Reservoir Project

The Water Quality Recreation Project was established to determine the effects of recreational activity on reservoir water quality. Project activities during the past year have included: an intensive sampling program to investigate the influence of nutrients on algal activity which affects water quality; correlation of the measured parameters; and the preparation of a report on the past three years of Project activities.

Since the Indianapolis Water Company has apparently abandoned its plan for development of the reservoir area for intensive recreational use, it has been decided to close the Project by the end of the 1st quarter of FY66.

Upper Mississippi River Studies

Activities for the UMRCBS Type I study (Upper Mississippi River Comprehensive Basin Study), sponsored by the Corps of Engineers, included completion of PERT chart for the study, and collection of basic data for three planning subbasins. Staff members participated in planning meetings of the Coordinating Committee and Advisory Committees. The area covered by this study is shown on Figure 3.

Project planning activities for the PHS Comprehensive Project included completion of a project study plan, with PERT chart and cost estimates.

Basic Data

Activities performed for Basic Data Branch included 30 visits to the 18 Water Pollution Surveillance System stations in Region V, verification of drainage boundaries on base maps for river mile coding, and transmitting monthly reports of bond sales and contract awards for water and sewage utilities to State agencies for verification.

Technical Assistance

Nine summary reports and five reviews of final work plans were prepared for Watershed Protection and Flood Prevention Projects of the Soil Conservation Service.

Eleven hydroelectric plants were inspected for possible water pollution problems, and recommendations for consideration in granting of licenses were forwarded to the Federal Power Commission.

Final inspection reports and recommendations for Federal disaster aid for emergency repairs in 28 communities following the Ohio River flood of March 1964 were prepared for Office of Emergency Planning. In the wake of record floods on the Minnesota and Mississippi Rivers in April-May, and a series of tornadoes which swept across the Region on April 11, President Johnson declared 87 counties in Region V to be disaster areas, eligible for Federal assistance. Staff engineers inspected flood damages in Minnesota, Wisconsin and Illinois. Typical examples of riverside sewage treatment plants vulnerable to flooding are shown on Figures 4 and 5. The Shakopee, Minnesota, treatment plant, which was partially inundated by the Minnesota River, is shown in Figure 4. The Chaska, Minnesota, plant, which was protected from the Minnesota River flood by an emergency dike, is shown in Figure 5.

A staff member was assigned to the President's Committee on Equal Employment Opportunity for the period June 1 - October 31, 1964, in the building construction field program. Building contractors in ten cities were contacted to evaluate compliance with Executive Orders relating to non-discrimination in employment on construction work involving Federal funds.

A staff member was assigned to Region IV, Atlanta, for two weeks in June 1965, to assist in the investigation of complaints of violations of the Civil Rights Act by hospitals either built or operated with Federal funds.

International Joint Commission

The governments of the United States and Canada requested IJC (International Joint Commission) in October, 1964, to investigate (1) pollution of Lakes Erie and Ontario and the international section of the St. Lawrence River and (2) further regulation of the levels of all of the Great Lakes.

IJC has appointed Engineering Advisory Boards to make these studies. Region V will have primary responsibility for pollution studies of Lake Erie. Staff members are participating in preparation of (1) an interim report on water quality in the study area and (2) preparation of an interim statement of general water quality objectives for the waters under study. On the Lake Levels Study, staff members will determine the effects of variations in lake levels on water supply and waste treatment facilities.

In cooperation with the Detroit River-Lake Erie Project, the Detroit Field Unit maintained the boundary water monitoring program in the St. Clair, Lake St. Clair and Detroit River. A two week survey of the St. Marys River connecting Lakes Superior and Huron, was conducted in August, 1964. The Unit continued operation of five carbon filter organic sampling stations on the St. Clair and Detroit Rivers. The Unit also participated in a co-operative study on combined sewage overflow from Detroit, as these discharges directly affect the coliform level of the Detroit River.

Semi-annual reports of activities were presented to the IJC Advisory Board in August and February.

WORK PLANS - FISCAL YEAR 1966

Cooperative Studies

The Water Supply and Quality Control Appendix of the Big Muddy River coordinated basin study will be essentially completed during the year. Storage needs for water supply and quality control will be determined, and benefits attributable to such storage will be calculated. Completion of review draft of the Appendix is scheduled for not later than September 30, 1966.

It is anticipated that the Corps of Engineers will request a similar study of the Minnesota River Basin early in FY 66. Activities during the year are expected to include planning and scheduling of the study, and collection of basic data.

Upper Mississippi Studies

Activity on the UMRCBS Type 1 study will be the completion of collection of basic municipal water supply and waste source data for all 16 planning subbasins and the main stem of the Mississippi River.

Planning for the PHS Comprehensive Project will include refinement of schedules, preliminary planning of physical facilities and recruitment of key personnel.

Basic Data

Operation and maintenance of Water Pollution Surveillance System stations will be performed by the Basic Data Branch office in Cincinnati in FY 66. The Section will continue to forward monthly reports of bond sales and contract awards to State agencies for verification.

Technical Assistance

The Section will continue to review hydroelectric power applications for license by Federal Power Commission when requested. Reviews of Soil Conservation Service Reports, and of Corps of Engineers reports will be done as requested.

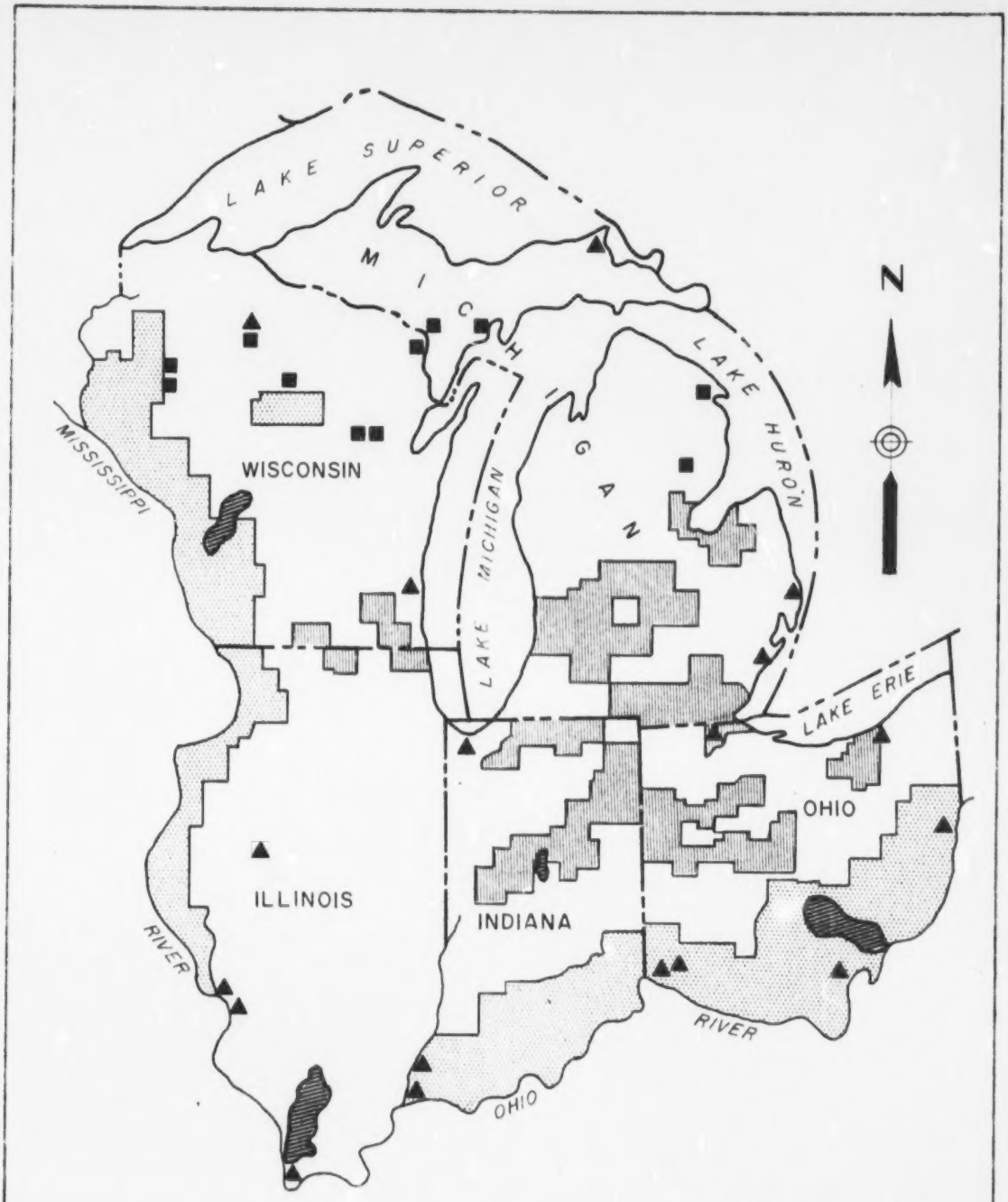
Final inspection reports on flood and tornado damage applications to Office of Emergency Planning will be processed.

Miscellaneous requests from State and local agencies and private citizens will be handled as received.

International Joint Commission

The PHS will have primary responsibility for conducting the U.S. portion of planning and studies of the new pollution reference. Staff

members are preparing an interim report on water quality conditions in Lakes Erie and Ontario which will be presented to the Advisory Board August 31, 1965. Staff members will participate in further planning and development of studies and research which should be undertaken by IJC for the pollution reference. The U.S. portion of the IJC study of further regulation of the levels of the Great Lakes will be sponsored by the Corps of Engineers. Region V will participate in the Shore Property Studies, determining the effects of lake levels on water supply and waste treatment facilities. The Detroit Field Unit will continue the boundary water monitoring program in the Detroit River, Lake St. Clair and St. Clair River at the same intensity as in FY 65. The Unit will return to the St. Marys River in August for a two-week survey. The data from the monitoring program will be evaluated for water quality control and trends, and semi-annual reports will be made to the IJC Engineering Advisory Board.



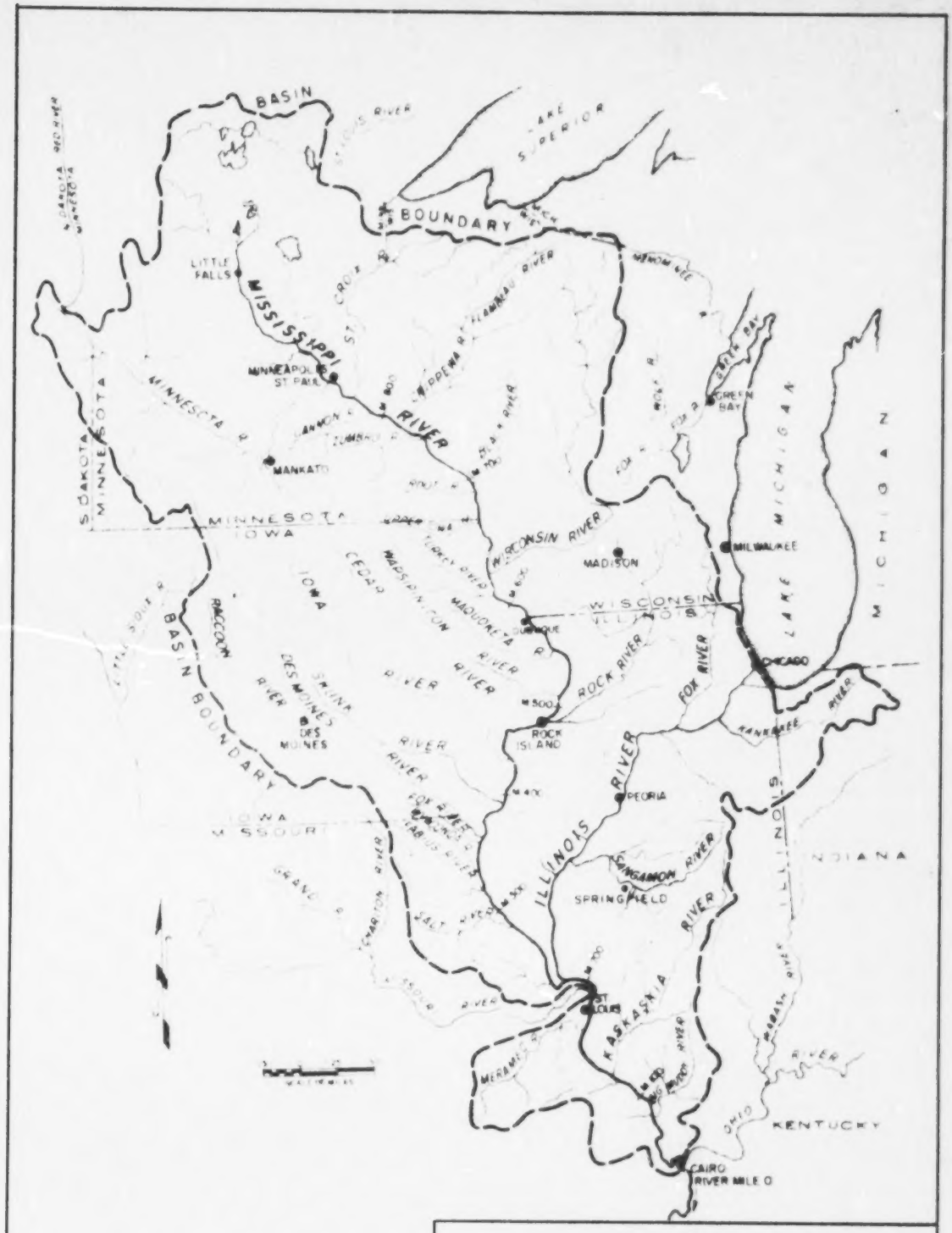
LEGEND

- Hydro-Electric Plants
- Water Pollution Surveillance System
- Water Resource Studies
- Flood Disaster Areas
- Tornado Disaster Areas

ANNUAL REPORT-FY 1965
WATER RESOURCES ACTIVITIES

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE
REGION V CHICAGO, ILLINOIS

FIGURE 2



ANNUAL REPORT- FY 1965
UPPER MISSISSIPPI RIVER
COMPREHENSIVE BASIN STUDY

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE
REGION V CHICAGO, ILLINOIS

FIGURE 3

Shakopee, Minnesota Sewage Treatment Plant
U. S. Navy Photograph Figure 4

Chaska, Minnesota Sewage Treatment Plant
U. S. Navy Photograph

Figure 5

TWIN CITIES-UPPER MISSISSIPPI RIVER PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Project Management

The establishment of a resident group in Minneapolis, as a result of the first session of a joint Federal-State Conference in February 1963, to study a total of 270 miles of interstate and intrastate waters, was considered an opportunity to put into effect procedures designed to accomplish pollution abatement, guided by recent experiences in Project management. This requires the establishment of good public relations and amicable cooperative relationships with State and local agencies. Efficient management also requires realistic scheduling of activities, so that deadlines can be met with adequate technical data to serve Project needs. The Project has made notable progress toward these management goals, as described below.

Public Awareness

As a result of extensive interviews and feature stories of the Project by leading area newspapers, knowledge of the Project's existence and mission has become widespread. This has resulted in the dissemination of information through the Minnesota and Wisconsin Departments of Health to interested individuals and groups, and has assisted the States to keep abreast of pollution situations existing in the study area which may require corrective action. The excellent communication which the Project has established with the interested agencies through the Project Committee has resulted in the development of several cooperative endeavors including, but not limited to the following: cooperative study with MDH (Minnesota Department of Health) and MSSD (Minneapolis-St. Paul Sanitary District) to more fully characterize the waste constituents coming to the District plant; a joint study with MDH to detect viruses in the influents and effluents of selected waste treatment plants as well as in the rivers downstream; joint industrial and municipal waste treatment plant visits with the agencies of the State concerned; and a cooperative fish collection activity with the Minnesota Department of Conservation for purposes of fish flesh evaluation.

Program Planning

In order to assist in understanding the problems to be encountered in meeting imposed deadlines with sufficient technical information, the staff developed detailed plans of its numerous and varied activities. The plans were revised following a critique and workshop meeting which was designed to: (1) evaluate data collected during the first nine months of operation, and (2) assist in the preparation of a sound and realistic schedule of anticipated activities, events, and deadlines.

The significance of the Report Coordinator's contributions toward the Project's mission centers around the development of the Project's final

report outline, and the preparation of preliminary outlines of individual reports in order that they will be compatible with the final report. These accomplishments plus the continual and immediate review of collected data insure maintenance of the established schedule and restrict the collection of non-essential information. FY 65 was a fruitful year in respect to report preparation in that two volumes of the final report were prepared and forwarded to Headquarters for review and comment. This is significant since the final report was not due in its entirety for another ten months.

In collecting pertinent information from the 270 miles of stream under study, careful consideration has been given to all previous work of other agencies and individuals, and duplications avoided where possible. Studies incorporating newer approaches as well as the normal procedures for the characterization of water quality were carried out. These included such techniques as dye tracing for patterns of dispersion and time of passage, detection of pathogenic bacteria, viruses and pesticides. An evaluation of river quality under conditions of ice cover was performed, incorporating an extensive biological sampling program. A continuous sampling schedule for plankton and nutrient analyses was also carried out over the entire study area for one calendar year. The effect of severe flooding on bottom biological life and sludge deposits was determined as a result of an extensive biological sampling activity before and after the flood season.

All data collected, with the exception of biological data, have been placed on magnetic tape and are ready for immediate recall as the need should arise. This normally will result as a request from an outside source for information concerning water quality, or the Project's own interpretive purposes. As these data are reviewed, preliminary reports are prepared according to the pre-established outlines and time schedules.

WORK PLANS - FISCAL YEAR 1966

The Situation

The Nation's fourteenth largest metropolitan area is currently in a state of uneasiness over activities related to water supply and pollution control. Numerous situations reflect the general state of perplexity in the area. Notable among these are:

a. Attempts to establish water quality standards on the Minnesota River.

b. Litigation being carried out contesting the earlier established standards of water quality.

c. Concern being expressed over poor water quality.

d. Plans developed for future sewage disposal facilities being challenged by suburbs.

e. Alternate proposals to the metropolitan plan being studied.

f. Total unsewered population in the metropolitan area is more than 100,000 including the 10 largest Minnesota communities without sewer systems.

g. Present Sanitary District sewage treatment plant currently undergoing a $23 million expansion program to bring removal efficiency up to 75%.

h. Governor of Minnesota pledging the correction of water pollution problems in the area.

i. The construction of a $68 million steam generating electric power plant creating a controversy over the use of interstate waters.

j. Lack of adequate manpower and funds at the State level results in inadequate enforcement of abatement programs.

k. Advisors to the Governor openly criticizing the Minnesota Water Pollution Control Commission for its inadequacy in the performance of its duties.

l. The Governors of Minnesota and Wisconsin jointly requesting Federal assistance in the abatement of pollution in the area.

Reports

The Project's goal is not to resolve all of these items since many will

require State and Federal legislation. The Project's final report to the conferees will, however, prepare the way for solutions to the more complicated and less understood items of immediate pollution abatement. An earlier established program will continue to be carried out which will culminate in April, 1966, when the final report will be presented to the conferees. The preparation and completion of the final report will be of paramount importance during FY 1966. To facilitate its completion, the Project will reorganize in the fall of 1965. This will result in a reorientation from a data-gathering activity to an interpretive activity utilizing a basic two-section (Engineering and Reports) organization with the former having the responsibility for terminal monitoring. This change in orientation will result in a substantial reduction in force and a significant economic gain to the Division.

The basic objective of the final report, immediate abatement needs, is being and will continue to be facilitated by management techniques which include: the preparation of guidelines of report writing; development of early interim reports of activities suitable for inclusion in the final report; and early preparation, review and approval of sections of the final report. Considerable effort will also be devoted during the early part of FY 66 to the collection and preparation of documented photographs and other pertinent materials which will be developed into appropriate visual aids as a necessary part of the next session of the conference.

Surveillance

A terminal monitoring program developed and conducted by the Engineering Section will be carried on from the time of reorganization in the fall until the conference for the purpose of evaluating any changes in the quality of the rivers. This activity will be integrated into the monitoring schedule of the Sanitary District for maximum benefit.

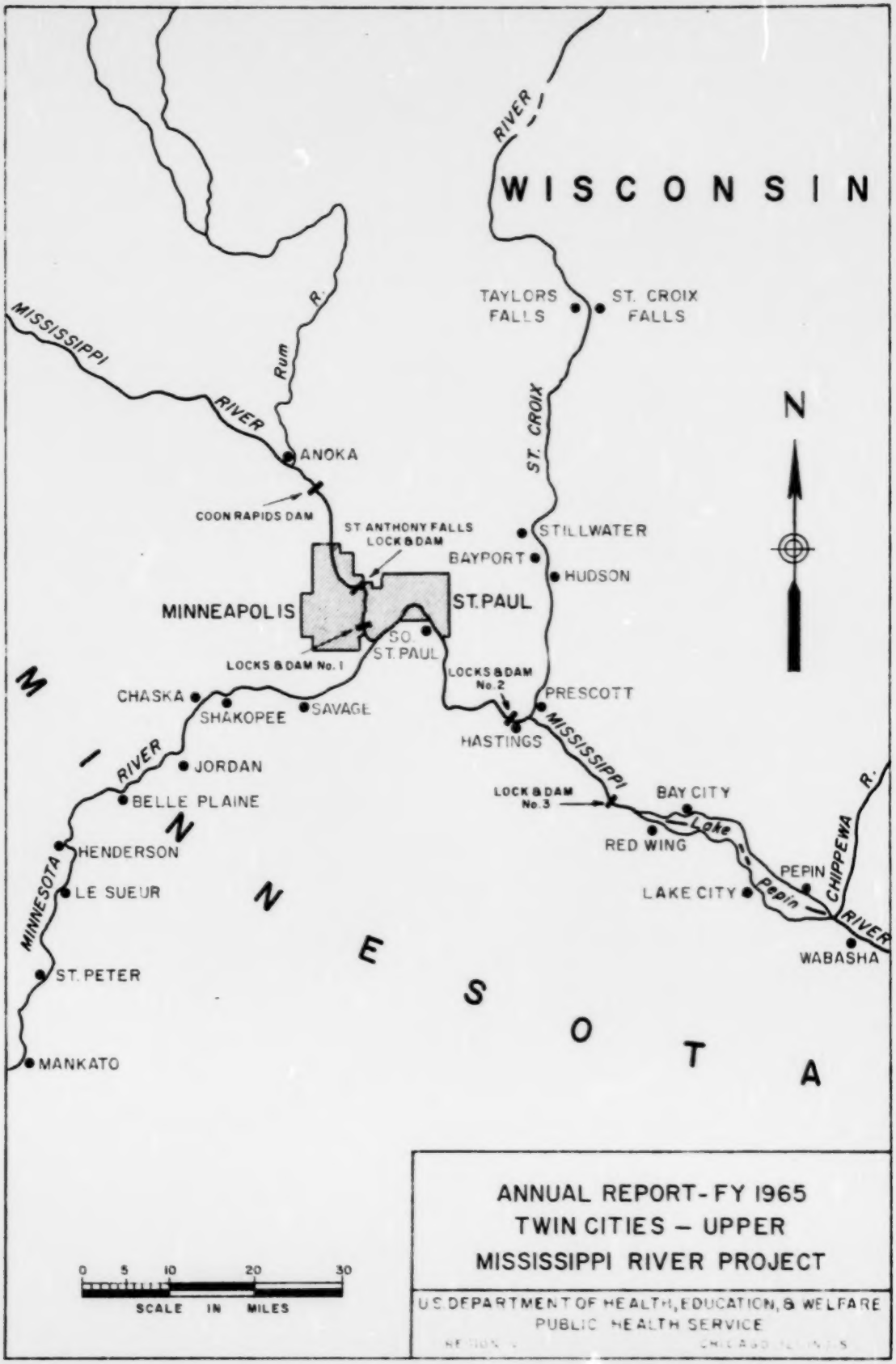

WISCONSIN
RIVER
TAYLORS FALLS
ST. CROIX FALLS
ST. CROIX
MISSISSIPPI RIVER
Rum R.
ANOKA
COON RAPIDS DAM
ST ANTHONY FALLS LOCK & DAM
STILLWATER
BAYPORT
HUDSON
MINNEAPOLIS
ST. PAUL
SO. ST. PAUL
LOCKS & DAM No. 1
LOCKS & DAM No. 2
PRESCOTT
CHASKA
SHAKOPEE
SAVAGE
HASTINGS
MISSISSIPPI RIVER
JORDAN
BELLE PLAINE
LOCK & DAM No. 3
BAY CITY
Lake Pepin
CHIPPEWA R.
RED WING
PEPIN
LAKE CITY
HENDERSON
MINNESOTA RIVER
LE SUEUR
ST. PETER
WABASHA
MANKATO
N
MINNESOTA
0 5 10 20 30
SCALE IN MILES
ANNUAL REPORT- FY 1965
TWIN CITIES – UPPER
MISSISSIPPI RIVER PROJECT
U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE

FIGURE 6

DETROIT RIVER-LAKE ERIE SURVEILLANCE PROJECT

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Authority

The Detroit River-Lake Erie Project was created in 1962 as a result of the recommendations made at the first session of a joint Federal-State Conference on Pollution of the Navigable Waters of the Detroit River and Lake Erie within the State of Michigan. The project objectives are to determine the extent and sources of pollution in the study waters, to determine the effects of this pollution, and to develop a plan for abating pollution and improving water quality in the study area.

Conference Reconvened

The second session of the Conference, June 15-18, 1965, received widespread favorable publicity, and provided a valuable discussion of the pollution problems in the study area. The Project report to the Conferees covered many specific problems in detail such as sources and effects of municipal and industrial wastes, the impact of combined sewer overflows on water quality, areas of specific interference with health and welfare, and factors affecting the aging of Lake Erie. Extensive data on current patterns which transport wastes to problem areas in the Detroit River and the Michigan portion of Lake Erie were also presented.

As the recommendations of the Conferees are put into effect, the improvement in water quality in the "headwaters" of Lake Erie will provide nearly four million residents of the area with a water resource of which they can be justly proud.

Surveillance Established

During the past year, the Project staff was reduced as the Project mission changed to a program of surveillance sampling to serve as a continuing check on water quality in the study area. Samples were obtained from the Detroit River, Lake Erie, major tributaries, areas of intensive recreational use, and domestic and industrial waste sources. The study of the characteristics of combined and separate sewer discharges was contined with the cooperation of the Michigan Department of Health.

WORK PLAN - FISCAL YEAR 1966

Surveillance to Continue

The Project will be engaged in a continuous monitoring of the water quality of the Detroit River and the Michigan waters of Lake Erie. The main objective of the program will be to note and monitor the improvements which have been called for in the recommendations of the second session of the Enforcement Conference concerning the study waters. The Conference pointed out problems and deficiencies in water pollution control and made specific recommendations for remedial action to assure a continued supply of water of sufficient quality to meet the needs of expanded population and economic growth in the study area. Significant additional waste treatment works as well as improved operation of existing facilities are required to meet these objectives.

Routine activities will include sampling for significant chemical, bacteriological, and physical indices of pollution in the Detroit River and Lake Erie. Significant changes in water quality will be noted and reported to proper authorities. Domestic and industrial waste effluents in the area will be sampled regularly to determine changes in waste loadings affecting water quality in the river and lake. These activities will be coordinated with those of the Detroit Field Unit of the International Joint Commission, to prevent duplication of effort.

Combined Sewer Study

The Surveillance staff will continue to participate with the Michigan Department of Health in a special study of the effect of overflows from combined and separate sewers upon water quality. The study in the past dealt only with the bacteriological aspects of the overflows but will now be expanded to include the chemical and physical parameters that degrade water quality. These studies will be designed to evaluate alternative solutions the City of Detroit could use in solving this perplexing pollution problem. Results will demonstrate the feasibility of certain pollution-abatement measures, and how and in what proportions the Detroit River would be affected by the various proposals.

Special Studies

Special studies will be conducted in the areas where data may be lacking and where improvements and changes have occurred in recent months which may affect water quality conditions. These studies will include comprehensive surveys on three new or expanded sewage treatment plants in the area and a study of the effects of rainfall on the bacteriological quality of a Lake Erie tributary.

The Project will also continue to collect data on the effect of wastes from the Detroit metropolitan area on the biological productivity of Lake Erie, in an effort to aid in understanding of the eutrophication process.

ANNUAL REPORT-FY 1965
DETROIT RIVER-LAKE ERIE
SURVEILLANCE PROJECT

U.S. DEPARTMENT OF HEALTH, EDUCATION, & WELFARE
PUBLIC HEALTH SERVICE
REGION V CHICAGO, ILLINOIS

FIGURE 7

GREAT LAKES-ILLINOIS RIVER BASINS PROJECT
PROJECT HEADQUARTERS

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Illinois River Report Written

The Illinois River Basin Comprehensive Report to be published this summer, provides a plan of action for pollution abatement and prevention which, when implemented, will provide improved water quality for the present and anticipated future water uses within the basin. The success of the program rests on: improvements in treatment, exclusion, and control of waste discharges by the MSD (Metropolitan Sanitary District of Greater Chicago); sewage collection and treatment for the outlying communities surrounding the MSD; the assured availability of dilution water from Lake Michigan; improved treatment for municipal and industrial wastes in the Joliet and Peoria areas; and improved waste treatment and development of reservoirs for water quality control for the tributaries of the basin. Solutions to problems such as nutrients and control of storm spillage will depend on the outcome of research.

It has been estimated that the capital construction cost for presently needed waste treatment facilities within the basin is about 58 million dollars, and that an annual capital construction expenditure of about 20 million dollars will be required to provide for obsolescence and future growth over the next 20 years.

Illinois River Clean-up Started

Significant accomplishments of pollution abatement, or actions that will result in improved water quality in the Illinois River basin, have already taken place and are believed to have been influenced directly or indirectly by the findings resulting from the Project's studies in this area. Programs have been initiated within the MSD to (1) connect industrial discharges to its sanitary system, (2) correct malfunctioning storm relief sewers, (3) improve the waterways monitoring activity, (4) initiate a study of combined sewer system problems, (5) construct a Research Laboratory and acquire staff for further study of waste treatment problems, (6) require unconnected industries to adequately treat waste discharges and (7) require separation of sewers in new construction and in major extensions of old systems in the District outside the Chicago city limits. The Illinois Sanitary Water Board has issued three technical releases in recent months establishing policy with regard to waste treatment requirements for the Illinois River and specific tributaries. These include secondary treatment for all wastes discharged into these waters, eighty-five percent reduction of BOD in organic wastes discharged by industry, the addition of tertiary treatment and disinfection where it is found that conventional secondary treatment is inadequate, and the destruction of cyanides before discharge. The Sanitary Water Board has also reported significant progress in the elimination of industrial waste discharges in the Peoria-Pekin area. The

State of Indiana has reported construction of improved treatment facilities in the Calumet area of Indiana tributary to the Illinois River, at the Hammond treatment plant.

Lake Michigan Report Next

The Lake Michigan Basin Comprehensive Water Pollution Control Program report is rapidly approaching its final stages of completion. The voluminous data procured by the Project are undergoing intensive digestion and evaluation for the purpose of determining the needed controls on waste discharges and the means for effecting these controls. In addition to specific problems encountered in the various tributaries, the Program will attack the vital problem of nutrient build-up in the lake and its resultant impairment of valuable water uses. The importance of a solution to this problem cannot be overemphasized, since the effects of excessive nutrient build-up will persist for many years, long after any corrective measures are applied, because of the extremely high ratio of Lake volume to annual flow-through -- about 100 to 1.

Lake Michigan Clean-up Started

Results of the Project's studies in the Lake Michigan basin have already been applied in effecting water pollution abatement through the calling of a Conference on Interstate Pollution of the Waters of the Calumet Area. Project data were used extensively in arriving at the existence of interstate pollution in this area, and in the measures adopted unanimously by the conferees for its abatement.

WORK PLAN - FISCAL YEAR 1966

Lake Michigan Basin and Headquarters Operations

The first draft of the report on a comprehensive program for water pollution control of Lake Michigan and its tributaries is scheduled for completion during the first half of this fiscal year. As the Lake Michigan basin program enters the implementation phase, Project staff will work in coordination with the Calumet Area surveillance group, in the assembly and interpretation of data on industrial waste discharges, and effectiveness of improvements.

In addition to the drafting of this report and its subsequent evolution into final form, the Headquarters office and staff will provide continuing services to the operating field stations in the fulfillment of their responsibilities. These services will include:

1. Administrative and management functions relative to apportionment of available funds, procurement and personnel services, space and property control, and supervisory direction of basin programs.

2. Laboratory support.

3. Supervision in the operations of lake current studies.

4. Economics and Land Use studies.

5. Data processing, and computer programming for mathematical models.

6. Development of operational plans for the study of the Lake Superior basin.

7. Flow regulation studies for construction agencies.

8. Development of an implementation program for the Illinois River Basin, and Lake Michigan Basin.

9. Consultation and review on technical matters.

These services will be fitted to the needs of the Program Office plans and activities, subsequently described.

Lake Currents

This activity will be terminated in Lakes Erie and Ontario in the fall of 1965. The processing of lake current data from both Lakes should be completed by December 1965, and will permit interpretation and report writing to be completed by end of FY 66.

Lake Huron current studies will be activated concurrently with the removal of the meters from the other lakes. It is expected that this lake will be instrumented in late fall of 1965. Field activities will continue through this fiscal year.

Economics

Revisions will be made in the first draft of the economic and population studies of the Lake Michigan and Lake Erie Watersheds to the extent necessary in the light of later findings by the Office of Business Economics, Department of Commerce, and of other organizations preparing economics and related reports relative to general or specific growth trends in major watersheds. Work will be started on the Lake Ontario, Lake Huron, and Lake Superior Watersheds.

Headquarters Laboratory

Lake Ontario samples will be sent to the headquarters laboratory for all toxic metal, organic, and radiochemical analyses. In addition, aid will be given on special studies and on any of the standard analyses when the program office laboratory needs additional support.

Support for the Lake Huron Program Office will be similar to that described for Lake Ontario, with additional support in biology. All the biological study for Lake Huron will be conducted by the Chicago biology staff.

The headquarters laboratory will provide the major support for the Lake Superior study. It will provide all the laboratory services, chemical, biological, microbiological, and radiochemical, and furnish the personnel for doing all analyses performed at field locations.

Lake Superior Basin

This study will be in its initial stages of development, consisting of facilities development, personnel build-up, and study and work plan development.

GREAT LAKES-ILLINOIS RIVER BASINS PROJECT
LAKE ERIE PROGRAM OFFICE

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Lake Erie Sampling Completed

The sampling programs for Lake Erie and the major tributaries have been completed. These programs were designed to determine the existing water quality throughout the Basin, the waste assimilation capacity of the major tributaries, and the sources of wastes and their effects on water quality and water uses. Twelve temporary stream gaging stations were operated to obtain flow records during the sampling period.

Special Lake Studies

An extensive program of sampling the bottom deposits of Lake Erie was conducted. The data obtained from this study indicate large quantities of nutrient material stored in the muds and show a relationship of the muds to the area of low dissolved oxygen in the central basin.

A special study of the central basin of Lake Erie was conducted in August 1964 to determine the extent of thermal stratification and dissolved oxygen deficiencies. The study was made to aid in understanding the mechanisms involved in the oxygen depletion of the hypolimnion.

The current meter program was begun and the results from the summer of 1964 are being analyzed. The data obtained from these measurements will show the general circulation pattern of the water within the main body of the Lake.

Bathing Beaches Sampled

Sampling was conducted at major bathing beaches of Lake Erie, to determine the cause and extent of microbiological pollution. Factors such as storm water overflows, sewage treatment plant effluent and weather conditions are being evaluated under this program.

Maumee Basin Study

A detailed study of water quality problems of the Maumee River basin was conducted, in response to a request by the State of Ohio. Special studies of tastes and odors and algal growths were made. Stream sampling to determine waste assimilation capacities received special emphasis.

Reports in Progress

Preliminary drafts of working documents were prepared for each of the major sub basins and for the Lake. Special reports on particular problem areas have also been prepared.

Reports in Progress, continued

Computer programs have been developed for statistical analysis of data. Preliminary oxygen sag equations have been formulated for selected reaches of the Cuyahoga and Maumee Rivers.

Technical Committee Appointed

A technical committee was formed to work with and assist the Public Health Service to develop long-term plans for the control of pollution affecting Lake Erie. The first major activity of the technical committee is the determination of water quality indicators and limits appropriate to particular water uses. Water Quality Groups were established and each group was assigned the task of determining suitable indicators of water quality for a particular use or group of uses.

Lake Erie Clean-up

As a result of a request by Governor Rhodes of Ohio, the Secretary of Health, Education, and Welfare has called a conference on pollution of interstate and intrastate waters of Lake Erie, to be held early in August. The Program Office will prepare reports of factual data on existing conditions, with recommendations for remedial actions. It is expected that this conference will provide the impetus for implementation of the comprehensive program for Lake Erie basin.

WORK PLAN - FISCAL YEAR 1966

Program Development

The Lake Erie Program Office will concentrate its activities in the evaluation of data and the development of the water pollution control program. Concurrently with the development of the control program the implementation of the program will be started. This activity will consist of obtaining agreements for pollution control with the State agencies and water users and presenting the program to the public. The Program Office will assist the conferees of the upcoming conference on pollution of Lake Erie in any manner needed.

Plan for Each Sub Basin

Through an engineering analysis of data and consultations with participating groups, a water pollution control program will be developed for each subbasin. The objective of each program will be to protect public health and welfare and to meet the desires of the public for water quality. Abatement measures and procedures will be set forth for each problem area, as well as a plan to help preserve unpolluted streams in their present condition. The planning will consider increased treatment, flow augmentation, removal of nutrients, deep well disposal, regional collection and treatment facilities, cooperative facilities, and methods for changing channel flow of the Lake and tributaries.

Current Study Completed

The only field data collecting function that will continue into FY 1966 is the Lake current study. Current measurements will be completed in the fall of 1965. Analysis of data will be completed during the fiscal year.

Basin Report Completed

The Lake Erie Comprehensive Report will be the means for presenting the water pollution control program to interested public officials, legislators, industry, water users, and citizens.

Public Awareness Program

It is anticipated that during the next year the Lake Erie Program Office will be meeting the public more often through the news media, through speaking engagements, and through committee work. A great amount of time will be spent presenting our program to the public.

GREAT LAKES-ILLINOIS RIVER BASINS PROJECT
LAKE HURON PROGRAM OFFICE

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

New Program Office at Grosse Ile

The Lake Huron Program Office acquired official status at the beginning of the fiscal year through transfer of personnel, equipment, and space from the reduced operations of the Detroit River-Lake Erie Project. Reorganization was designed to increase program efficiency. Quality control principles were used to effect substantial improvement in accuracy of field and laboratory results. Summary statistics of sample data are now available for evaluation within one month after the need for samples is determined in the office.

Lake Erie Program Aided

For the first half of the year operations centered around collecting existing water quality information for the Western Lake Erie Basin for the Lake Erie Program Office. The Enforcement Report of the Detroit River-Lake Erie Project was used as the base of information in the Detroit River and Western Lake Erie areas. It was necessary to collect basic information in the Lake St.Clair and St.Clair River Watersheds. Field and laboratory investigations were conducted and inventories of waste treatment practices and needs were compiled.

In the process of the investigations in Lake St.Clair, it was learned that the wastes discharged to the Clinton River far exceed the assimilative capacity of that waterway, and that a well-planned program is needed in this basin to abate pollution and improve water quality, especially in the field of municipal wastes.

Lake Huron Program Started

Field and laboratory investigations for the Lake Huron basin were begun in January, 1965. Major tributary streams were sampled monthly, and after the spring break-up, near-shore lake stations at selected locations were added to the monthly sampling routine. Nineteen stations in the Saginaw River basin have been sampled bi-weekly since spring. Results of analyses indicate that the major problem area is the Saginaw River basin and Saginaw Bay. Alpena Harbor and Thunder Bay also have poor water quality and may require detailed study.

Lake Erie Clean-up Started

Of special significance to effective comprehensive programs in the Great Lakes was the second session of the Conference on Pollution of the Navigable Waters of the Detroit River and Lake Erie within the State of Michigan held in June of 1965. The recommendations made at this Conference and the action taken by the citizens and the Conferees to abate pollution set the stage for a clean-up

program in all of Lake Erie. It is believed that other communities and metropolitan areas in the Lake Erie Basin will continue the impetus generated at this Conference and will initiate widespread improvements.

WORK PLAN - FISCAL YEAR 1966

Saginaw River Basin

Ninety percent of the people and problems in the Lake Huron Watershed are located in the Saginaw Valley. To cope with increasing water pollution, major efforts will be expended in this historic Valley to meet the demands of the present and future. Other basins in Lake Huron will not be overlooked, however. Investigations to provide the technical base for the Comprehensive Program will be completed in Fiscal Year 1966. Such information will be used to determine the following:

1. Reaches of streams where pollution is now a serious problem and needs immediate attention.

2. A complete and accurate picture of the water quality in Southern Lake Huron, especially in the vicinity of the proposed water intake for the City of Detroit. This water intake is being designed to serve a projected population of 6 million people in Southeast Michigan.

3. Population and economic projections to predict future lake and tributary water quality.

4. Types of present and future water uses.

5. The capacity of the tributaries and lake for assimilating the wastes generated in the entire Lake Huron Watershed.

6. Water supply and waste treatment needs now and in the future to provide maximum protection to the water users.

7. The need for storage reservoirs to regulate stream flow for water quality control.

Program Formulation

The study will have as its aim the preparation and effective implementation of a water quality management program in the Lake Huron Watershed to provide a natural resource that the citizens will be proud of. The program will seek to eliminate pollution before problems arise, rather than after the fact. To reach the citizens with the necessary information, brochures will be prepared describing the program in Lake Huron and outlining its motives. Progress reports will be published at the end of each year and public meetings held annually to discuss progress and give to the citizens the water quality management program they desire.

Public Awareness

The technique of friendly persuasion will be used to reach the people, backed up by reliable facts to justify the program. Committees and work groups will be established to advance and sell the program.

The municipalities, industries, and the citizens residing in the Lake Huron Watershed will come to know the program is theirs, and instilled within their minds will be a willing and earnest desire to move ahead in water pollution control.

GREAT LAKES-ILLINOIS RIVER BASINS PROJECT
LAKE ONTARIO PROGRAM OFFICE

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

New Program Office at Rochester

The Lake Ontario Program Office completed the specific objectives of its first fiscal year, namely: developing offices and laboratories, recruiting personnel, transferring equipment from other facilities, purchasing new equipment and supplies, preparing study and work plans, establishing liaison with cooperating agencies, and undertaking the initial phases of the program activities.

Field Program Started

The start in early February of bi-weekly sampling of 15 tributaries near their outlets marked the kick-off of the most extensive water quality survey ever undertaken in the Lake Ontario watershed. This sampling will determine the annual input of substances directly related to present and future lake quality problems. Deep water sampling at 42 stations, and inshore and harbor sampling at 116 stations, completed the spring phase of a seasonal lake sampling program to establish present levels of lake quality. Special sampling provided waste assimilation characteristics in six of the most significant stream sectors at cooler temperature and early summer flows. Several periodic measurements at selected land runoff quality and pesticide detection stations, part of a continuing program, is yielding data necessary to both the stream and lake evaluations.

Stream flows were measured at 15 locations, supplementing U.S.G.S. gagings, to provide flow data relating to sampling activities. Deep water current meters, operating at a maximum of 18 stations, recorded wind, water temperature, and water movement data for evaluating dispersions and transport of pollutants.

Laboratory in Operation

Laboratory personnel accomplished most of the chemical, biological and microbiological analyses at the Program Laboratories and on the laboratory vessel. The project Headquarters laboratories performed analyses requiring special equipment. Approximately 16,000 separate analytical determinations were made on over 1,000 samples.

Engineering Studies Begun

Information on existing water uses and waste discharges was obtained, compiled and displayed in ready form for estimating future conditions and improvement needs. A preliminary summary of problem conditions and immediate improvement needs was prepared for each of the 11 subbasin study areas.

Cooperative Activities

An intensive campaign of presenting a review of the program activities to all responsible pollution control engineers in the State and County Health Departments was successfully accomplished. Much interest was shown, and co-operation is very gratifying in all areas where information and assistance is required. A working relationship has been established with sanitary engineering and scientific groups at both Syracuse and Cornell Universities. The Program provides direct support to the Genesee Basin Comprehensive Study and is actively cooperating with the newly formed Finger Lakes area water resources planning study.

WORK PLAN - FISCAL YEAR 1966

Field Studies Completed

Program activities in FY 1966 will be highlighted by the completion of all field sampling, lake current studies, and laboratory analyses. Field investigations will be completed by the end of the second quarter, except for tributary mouth and special sampling which will continue into the third quarter. The field phase of Lake current studies, both deep water and inshore, will be completed during the second quarter.

Laboratory Work Completed

All laboratory analyses and identifications are expected to be completed by the end of the third quarter. Approximately 32,000 separate determinations from an estimated 2,000 samples are expected to be made during the fiscal year. The measured data will yield parameters for describing cause and effect relationships in simulation models. The effects of estimated future waste loads discharged to the water environment are thus predictable.

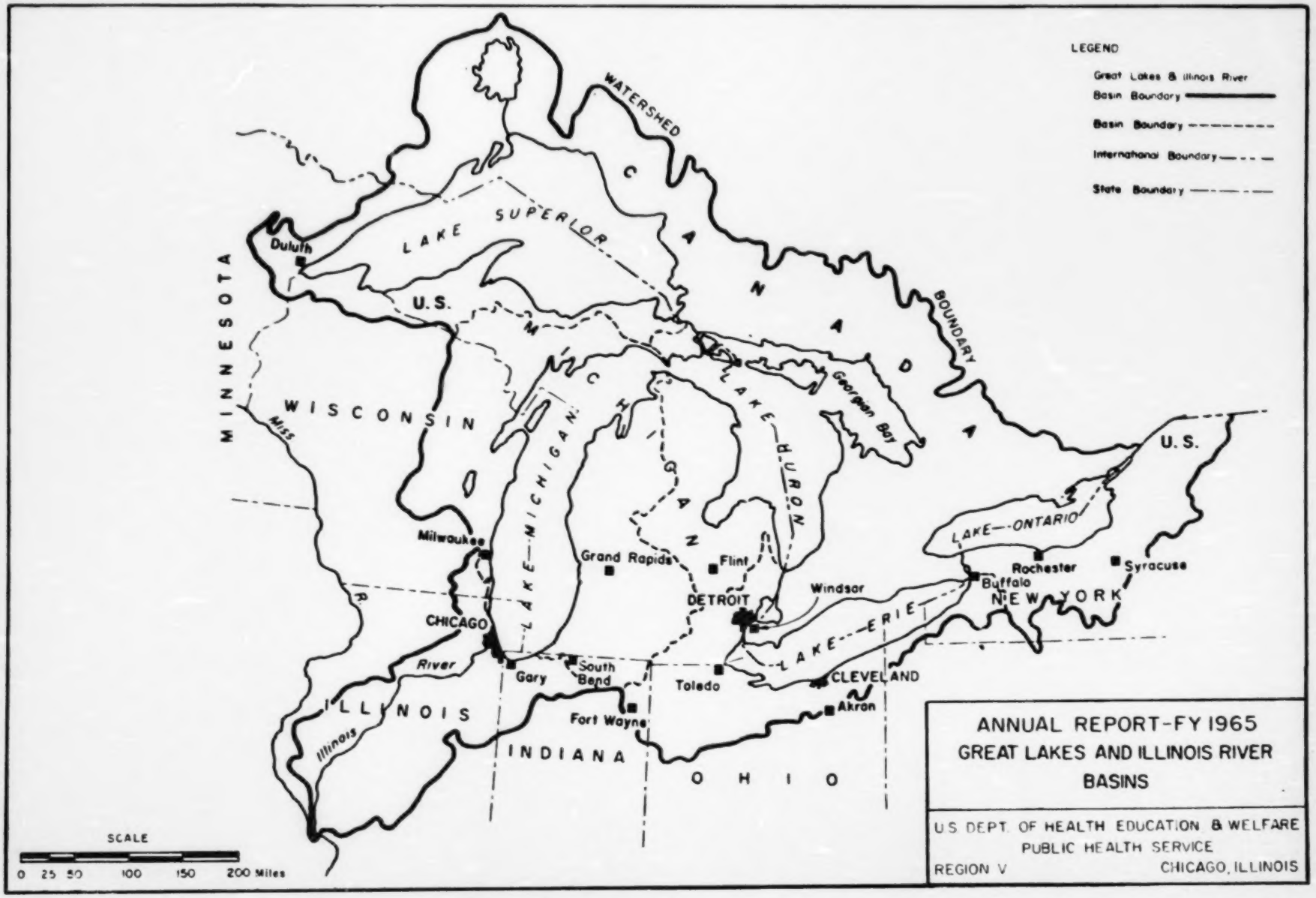
Evaluation of Data

During the second quarter there will be a shift in emphasis to engineering evaluation and preparation of drafts of subbasin reports. Using the information compiled on significant pollution discharges, the effects thereof on present water quality and water uses will be evaluated in each subbasin. A study will be made of factors contributing to the eutrophication of Lake Ontario and important inland lakes. Further, the extent and hazard of runoff from areas of heavy pesticide use will be examined.

Program Formulation

Planning the long-range program requires a description of the goals to be attained. Water quality objectives will be determined for each separately definable water use sector. Present stream standards are the baseline of reference for developing workable quality objectives acceptable to a large majority of the legitimate water users. The Lake Ontario Technical Committee and Water Use Subcommittees are expected to devote a large part of the year to developing water quality objectives.

Initial formulation of programs for each subbasin is expected by the end of the fiscal year. Pollution control measures will be identified as immediate and long-range. Needs for higher degree of treatment, better use of existing facilities, flow regulation, collection and monitoring facilities will be determined. Estimated costs of improvements, and a timetable for their accomplishment will be determined, particularly for the use of those charged with timely implementation.



ANNUAL REPORT-FY 1965
GREAT LAKES AND ILLINOIS RIVER BASINS

U.S. DEPT. OF HEALTH EDUCATION & WELFARE
PUBLIC HEALTH SERVICE
REGION V CHICAGO, ILLINOIS

FIGURE 8

OHIO RIVER BASIN PROJECT
PROJECT HEADQUARTERS

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Ohio River Basin Type 1 Study

Project Headquarters has been involved in the preparation of the Framework Study of the Ohio River Basin in cooperation with the Ohio River Division Engineer. This report is due early in calendar year 1966. The framework study will be preliminary or reconnaissance type investigations intended to: (a) provide broad-scaled analyses of water and related land resources problems, and (b) furnish general appraisals of the probable nature, extent, and timing of measures for their solution. From the results obtained to date, it can be seen that large cities such as Indianapolis, Indiana, and Dayton, Columbus, and Canton, Ohio, either have or may have in the near future serious water supply and/or quality control problems.

OHIO RIVER BASIN PROJECT
EVANSVILLE FIELD STATION

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Wabash River Basin Study

During fiscal year 1965, work was continued on the Big Walnut Creek Reservoir study. In connection with this study and earliest joint studies with the Corps of Engineers on White River, it was found that the flow of that stream, even with carryover storage, could not accommodate the future needs of Indianapolis for municipal and industrial supplies and water for quality control purposes on White River below Indianapolis. Accordingly, the Project Director suggested interbasin transport of water from Big Walnut Creek. Preliminary investigations by the Corps of Engineers indicated that this proposal not only would be feasible for future needs but would be more economical than equivalent storage upstream from Indianapolis.

Preliminary computations have indicated that Indianapolis will require 340 mgd for municipal and industrial purposes in 2020 and a flow of 1500 cfs will be needed in the river downstream to avoid a badly degraded condition annually.

Work is currently underway on studies for the Helm site on Skillet Fork and Louisville site on Little Wabash Rivers in Illinois. In Indiana similar studies are underway for the Big Walnut Creek, Big Blue River, and Flatrock River reservoir sites. It is anticipated that water for quality control purposes will be needed from the proposed Big Blue River Reservoir for quality control purposes for the eastern portion of the Indianapolis area.

Parallel to and in conjunction with studies for the Corps of Engineers, needs for municipal and industrial supplies and for water quality control in the Patoka and Eel River Basins have been discussed in conference with the Soil Conservation Service for inclusion in that agency's Wabash Basin Comprehensive Study.

Brine Pollution Study

In addition to reservoir studies, a preliminary study was made of the pollution from oil field brine wastes at the request of the Wabash Valley Interstate Commission. This study pointed out the areas of pollution, the areas most seriously affected and the net effects of the pollution upon interstate waters. This study called attention to areas of severe pollution in Indiana not previously suspected. As per a request from the Stream Pollution Control Board Secretary at the inception of the Wabash Basin Study, the pollution areas were mentioned to state officials for their further investigation.

Congressman Hamilton, Indiana Eight District, requested from headquarters a statement of the areas in his district in need of water supply or having a quality control problem. This information relating to fourteen counties was obtained from the State Board of Health and the Stream Pollution Control Commission and forwarded for use in replying to the Congressman.

WORK PLAN - FISCAL YEAR 1966

Concentrated effort will be placed upon sampling in the West Fork White River Basin from Martinsville, Indiana, to a point upstream from Muncie including intensive sampling in the Indianapolis, Anderson, and Muncie urban areas. Following this work, a more detailed computation will be made of needs for water for municipal and industrial purposes as well as for quality control.

A study of acid mine drainage in the Patoka River Basin will be undertaken and samples from this basin will be collected and analyzed. The area of sampling will be expanded and during the latter portion of the fiscal year, operations will begin in the Upper Wabash River Basin.

Studies will be made, water supply and pollution control needs determined, and reports prepared for reservoir sites as follows:

Reservoir	Stream	Subbasin
Helm	Skillet Fork	Little Wabash
Louisville	Little Wabash	Little Wabash
Big Blue	Big Blue River	E. Fork White
Downeyville	Flatrock River	E. Fork White
Big Walnut	Big Walnut Creek	W. Walnut White

OHIO RIVER BASIN PROJECT
WHEELING FIELD STATION

PROGRAM ACCOMPLISHMENTS - FISCAL YEAR 1965

Acid Mine Waste Study

An acid mine drainage study was initiated of the Raccoon Creek Basin in Ohio in cooperation with the Ohio Department of Natural Resources which may lead to a cooperatively financed project under the new Appalachia Program. Raccoon Creek is one of the most heavily acid mine drainage polluted streams in Ohio, and the pollution has seriously affected prime recreational areas owned and operated by the State of Ohio. Biological field investigations were completed in May 1965, and an intensive field survey was completed in June. Thirty-eight reconnaissance stations were sampled in the field for pH, DO, temperature, and specific conductivity; after which 21 stations were each sampled on six different occasions. Samples were prepared for shipping via commercial bus to the Wheeling Field Station where the following analyses were made in the Mobile Laboratory: Total hardness, chlorides, sulfates, acidity, alkalinity, iron, manganese, and on four selected stations -- BOD. An interim report will be prepared pending investigations to be made during periods of higher stream flows, after which a final report will be written.

During May 1965, the Field Station's Laboratory Services Section studied several small tributaries to the Ohio River in the State of Ohio which are seriously polluted with acid mine drainage. The objectives of the study were: (1) study standard analytical procedures to determine if modifications will be necessary to cope with high concentrations of iron, aluminum, sulfate, acid and other materials characteristic of local coal mine drainage; (2) to gain a better understanding of the chemistry of acid mine drainage and to propose corrective measures; and (3) provide valuable training of Field Station personnel to enable them to more effectively resolve similar problems encountered in future field studies.

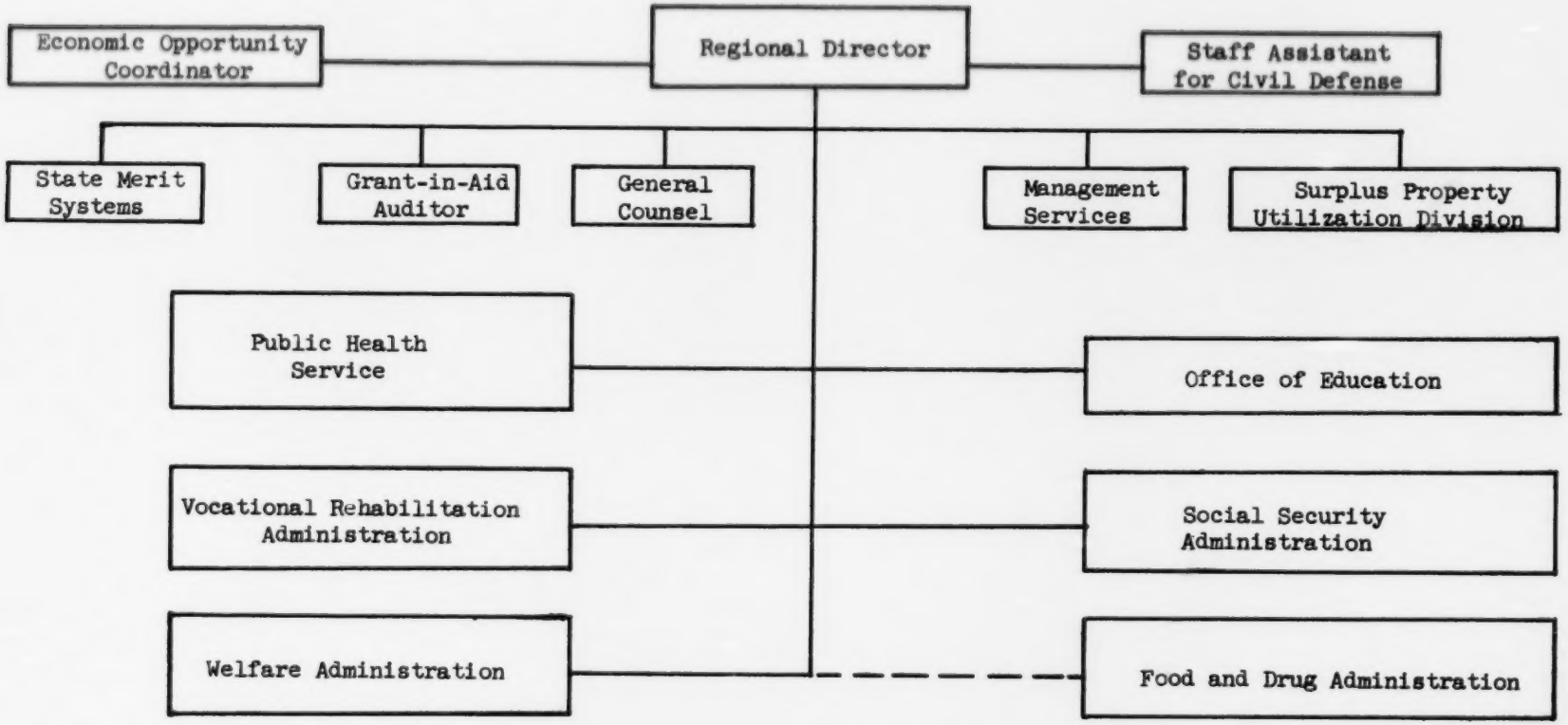
Two visits were made during the year to Canton, Ohio, in the Sandy-Nimishillen Creeks Watershed to obtain water use and waste information from local industries and water purification plants for use in the preparation of a flow regulation report for the U. S. Army Corps of Engineers. The principal water-using industry, Republic Steel, showed no cooperation.

ORGANIZATION

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION V - CHICAGO

FUNCTIONAL ORGANIZATION

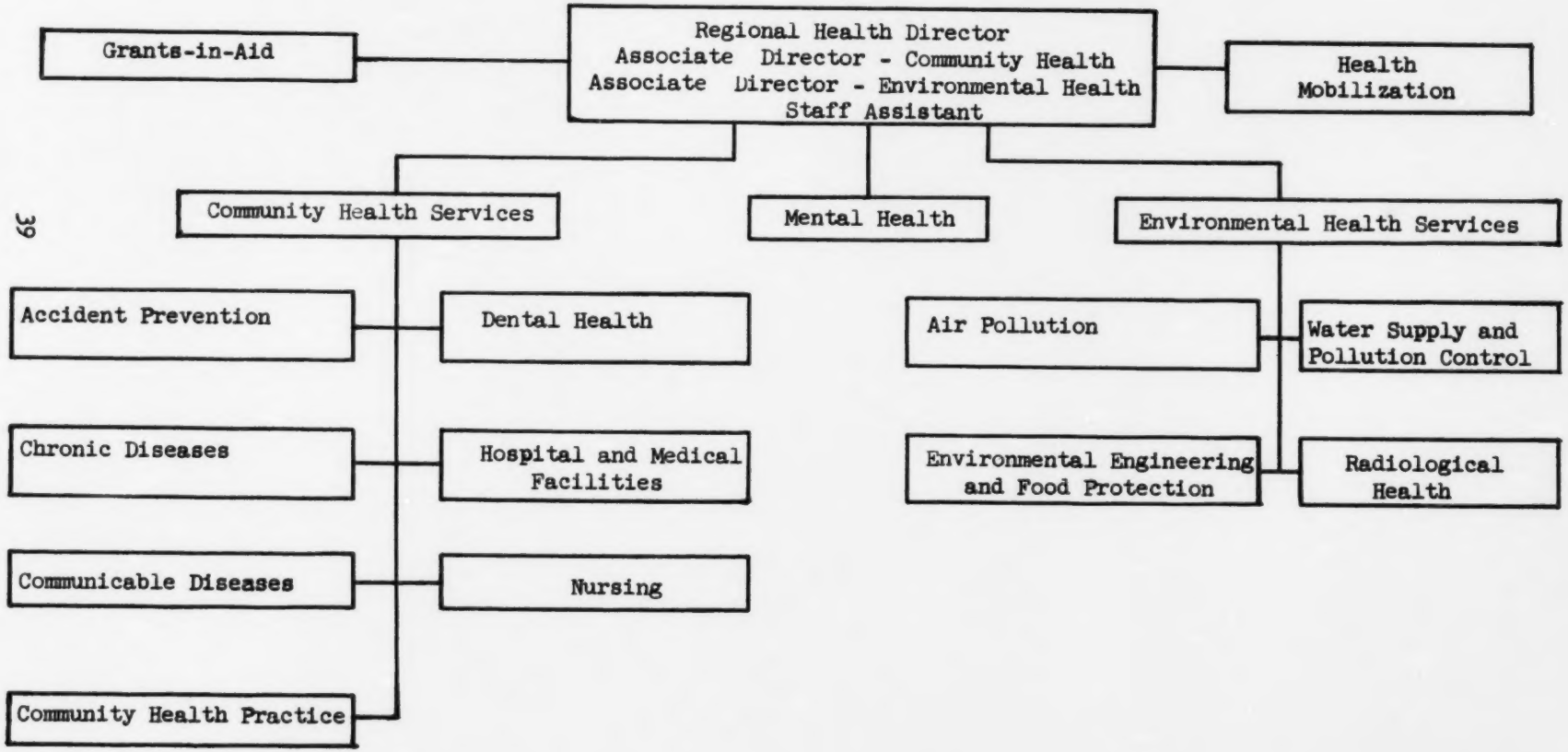


GPO 820-871

PUBLIC HEALTH SERVICE

REGION V - CHICAGO

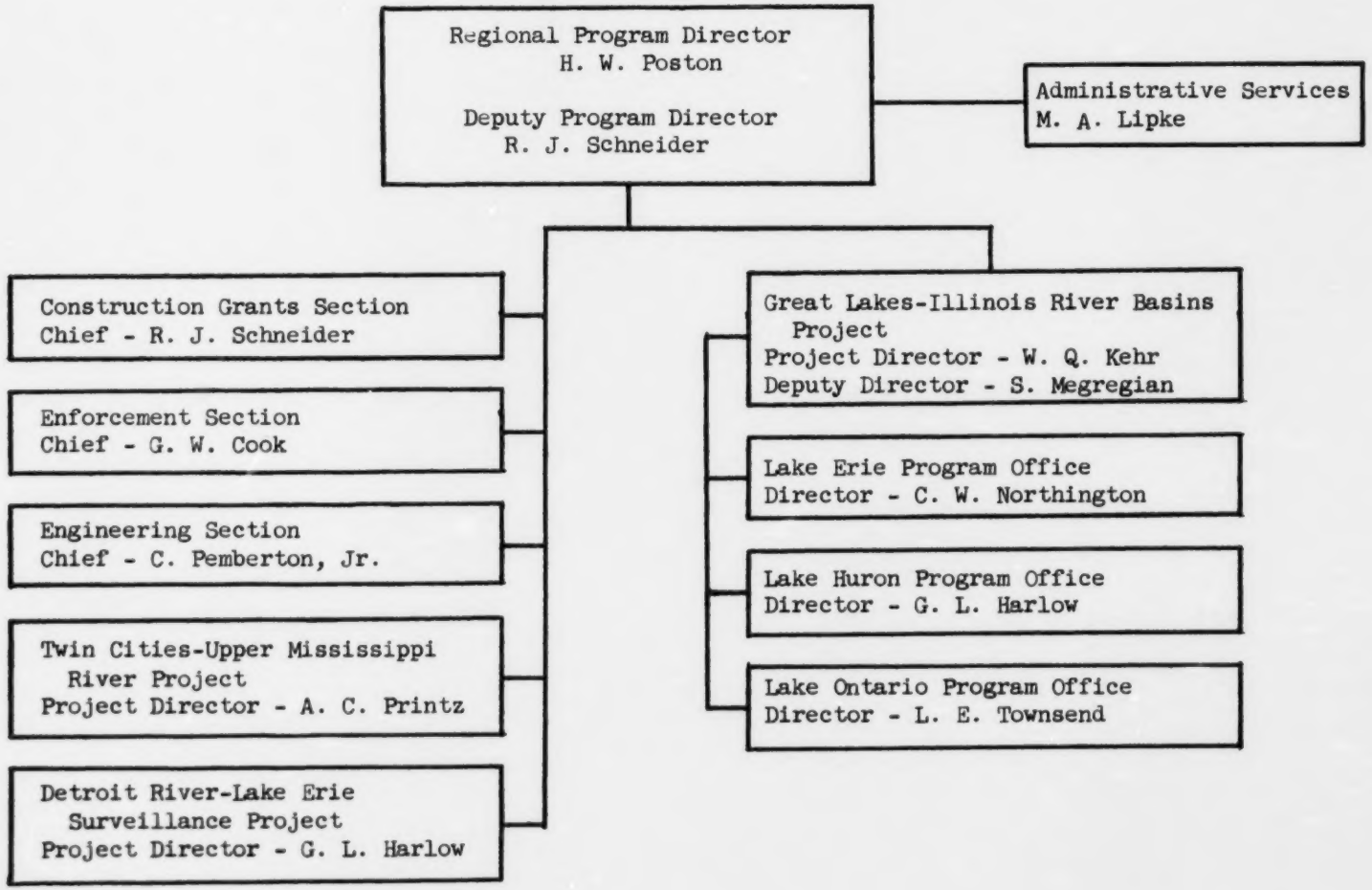
FUNCTIONAL ORGANIZATION



DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

REGION V - CHICAGO

ADMINISTRATIVE ORGANIZATION


Regional Program Director
H. W. Poston
Deputy Program Director
R. J. Schneider
Administrative Services
M. A. Lipke
Construction Grants Section
Chief - R. J. Schneider
Enforcement Section
Chief - G. W. Cook
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Twin Cities-Upper Mississippi River Project
Project Director - A. C. Printz
Detroit River-Lake Erie Surveillance Project
Project Director - G. L. Harlow
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DIVISION OF WATER SUPPLY AND POLLUTION CONTROL
REGION V - CHICAGO

FUNCTIONAL ORGANIZATION